

In the Claims:

Please amend the claims as follows.

1. (Currently Amended) A process for the removal of hydrogen sulphide[[,]] and mercaptans ~~and optionally carbon dioxide and carbonyl sulphide~~ from a gas stream having a high ratio of mercaptans to hydrogen sulphide and comprising hydrogen sulphide[[,]] and mercaptans ~~and optionally carbon dioxide and carbonyl sulphide, by removing in a first step most of the hydrogen sulphide, part of the mercaptans and optionally part or most of the carbon dioxide and carbonyl sulphide by,~~ wherein the process comprises: washing the gas stream with an aqueous washing solution comprising 10 to 45 wt% (based on total solution) of water, 10 to 40 wt% (based on total solution) of a physical solvent, and 20 to 60 wt% (based on total solution) of an amine, ~~which first removal step is to yield a washed gas stream;~~ followed by ~~a second removal step in which removing mercaptans from the washed gas stream are removed~~ by means of molecular sieves, in which process the amount of mercaptans ~~which is removed by the aqueous washing stream solution from the gas stream~~ is between 60 and 96 % (of total removed mercaptans in steps one and two), and the amount ~~which is~~ of mercaptans removed by the molecular sieves is between 4[[0]] and 40 % (of total removed mercaptans in step one and two).

2. (Previously Presented) A process according to claim 1, in which the gas stream comprises 0.05 to 20 vol% hydrogen sulphide, 10 to 1500 ppmv mercaptans and 0 to 40 vol% carbon dioxide.

3. (Previously Presented) A process according to claim 2, in which the gas stream comprises hydrogen sulphide in an amount between 0.15 and 0.6 vol%.

4. (Currently Amended) A process according to claim 3, in which the ratio ~~between~~ of the amount of mercaptans (expressed as ppmv) ~~and~~ to the amount of hydrogen sulphide (expressed as vol%) in the gas stream is at least 50.

5. (Previously Presented) A process according to claim 4, in which the gas stream is natural or associated gas.
6. (Previously Presented) A process according to claim 5, in which the physical solvent is sulfolane.
7. (Previously Presented) A process according to claim 6, in which the amine is a secondary or tertiary amine.
8. (Previously Presented) A process according to claim 7, in which the aqueous washing solution comprises 20 to 35 wt% based on total solution of water, 20 to 35 wt% of a physical solvent and 40 to 55 wt% of an amine.
9. (Currently Amended) A process according to claim 8, in which the washed gas stream obtained in the ~~first~~ washing step is cooled to a temperature between 5 and 45 °C, where after any condensate is separated from the washed gas stream.
10. (Currently Amended) A process according to claim 9, in which the ~~first~~ washing step is carried out at a temperature of at least 20 °C[[,]] and at a pressure between 15 and 90 bara.
11. (Currently Amended) A process according to claim 10, ~~in which in~~ wherein the ~~second removing~~ step uses a crystalline molecular sieve ~~is used especially about 6 ångström of the type selected from the group of zeolite type A and zeolite type X.~~
12. (Currently Amended) A process according to claim 11, wherein ~~in which~~ the ~~second removing~~ step is carried out at ~~a temperature of 25 °C and~~ a pressure between 15 and 90 bara.
13. (Previously Presented) A process according to claim 12, in which the regeneration gas of the second step containing mercaptans is remixed with the starting gas stream or is treated in a dedicated absorber.

14. (Currently Amended) A process for the removal of hydrogen sulfide and mercaptans from a gas stream that comprises hydrogen sulfide and a mercaptan and having a high ratio of mercaptans to hydrogen sulfide, wherein said process comprises:

washing said gas stream with an aqueous washing solution, comprising from 10 wt% to 45 wt% water, from 10 wt% to 40 wt% physical solvent, and from 20 wt% to 60 wt% amine, wherein said wt% is based on the total weight of said aqueous washing solution, to remove from said gas stream between 60 % to 96% of the total mercaptans removed from said gas stream by said process to thereby yield a washed gas stream; and

using a molecular sieve to remove from said washed gas stream a portion of the mercaptans contained in said washed gas stream amounting to between 4% to 40% of the total mercaptans removed from said gas stream by said process to thereby yield a treated gas stream having an amount of mercaptans that is less than that of said gas stream and in the range of from 5 ppmv to 60 ppmv.

15. (Previously Presented) A process as recited in claim 14, wherein said gas stream comprises from 0.05 to 20 vol% hydrogen sulfide, from 10 to 1500 ppmv mercaptan, and from 0 to 40 vol% carbon dioxide.

16. (Previously Presented) A process as recited in claim 15, further comprising: cooling said washed gas stream and separating condensate therefrom prior to said using step of said process.

17. (Previously Presented) A process as recited in claim 16, wherein said using step of said process includes the use of at least two mol sieve reactor vessels each of which contains a bed of said molecular sieve wherein at least one of said mol sieve reactor vessels is operating in an adsorbing mode and at least one of said mol sieve reactor vessels is operating in a desorption mode.

18. (Currently Amended) A process as recited in claim 17, further comprising:
utilizing a portion of said treated gas stream as a regeneration gas for regenerating said bed of
molecular sieve of said at least one of said mol sieve reactor vessels operating in said desorption
mode to yield ~~of~~ a regenerating gas containing mercaptans.

19. (Previously Presented) A process as recited in claim 18, further comprising:
mixing said regenerating gas containing mercaptans with said gas stream that undergoes said
washing step.

20. (Previously Presented) A process as recited in claim 19, wherein said physical solvent is
sulfolane.